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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/081,308	02/20/2002	Michael Richard Betker	8-8-16	9936

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EXAMINER	
TANG, KENNETH	
ART UNIT	**PAPER NUMBER**
2195	

DATE MAILED: 07/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/081,308	BETKER ET AL.	
	Examiner	Art Unit	
	Kenneth Tang	2195	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 May 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. This action is in response to the Response filed on 5/15/06. Applicant's arguments have been fully considered but are moot in view of the new grounds of rejections.

2. Claims 1-20 are presented for examination.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

3. Claims 1-20 are directed to non-statutory subject matter. In claim 1, for example, the establishing of a bound based on said number of live frames (or any other claimed limitation) does not provide a useful concrete and tangible result.

4. The claimed invention as a whole must be useful and accomplish a practical application. That is, it must produce a "useful, concrete and tangible result." State Street, 149 F.3d at 1373-74, 47 USPQ2d at 1601-02. The purpose of this requirement is to limit patent protection to inventions that possess a certain level of "real world" value, as opposed to subject matter that represents nothing more than an idea or concept, or is simply a starting point for future investigation or research (Brenner v. Manson, 383 U.S. 519, 528-36, 148 USPQ 689, 693-96 (1966)); In re Fisher, 421 F.3d 1365, 76 USPQ2d 1225 (Fed. Cir. 2005); In re Ziegler, 992 F.2d 1197, 1200-03, 26 USPQ2d 1600, 1603-06 (Fed. Cir. 1993)).

5. The tangible requirement does not necessarily mean that a claim must either be tied to a particular machine or apparatus or must operate to change articles or materials to a different state

or thing. However, the tangible requirement does require that the claim must recite more than a § 101 judicial exception, in that the process claim must set forth a practical application of that § 101 judicial exception to produce a real-world result. Benson, 409 U.S. at 71-72, 175 USPQ at 676-77 (invention ineligible because had "no substantial practical application."). "[A]n application of a law of nature or mathematical formula to a ... process may well be deserving of patent protection." Diehr, 450 U.S. at 187, 209 USPQ at 8 (emphasis added); see also Corning, 56 U.S. (15 How.) at 268, 14 L.Ed. 683 ("It is for the discovery or invention of some practical method or means of producing a beneficial result or effect, that a patent is granted . . ."). In other words, the opposite meaning of "tangible" is "abstract."

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 1-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In claim 1, it is unclear whether the "live frames" are related to the "instruction cache" because there is no connection made.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 1-20 are rejected under 35 U.S.C. 102(e) as being anticipated by Chilimbi et al. (hereinafter Chilimbi) (US 6,321,240 B1).

8. As to claim 1, Chilimbi teaches a method for establishing a bound on the execution time of an application due to task interference in an instruction cache shared by a plurality of tasks, said method comprising the steps of *(see Abstract)*:

determining a number of live frames of said application that are coexistent during execution of said application *(determine active cache blocks) (col. 9, line 1-21, etc.)*; and

establishing said bound based on said number of live frames *(cache block boundaries) (col. 8, lines 7-8)*.

9. As to claim 2, Chilimbi teaches wherein said number of live frames is a number of cache frames that contain a block that is accessed by said application in the future without an intervening eviction *(col. 9, lines 5-21)*.

10. As to claim 3, Chilimbi teaches wherein said number of live frames is determined by a post-execution analysis of cache access patterns of said application *(col. 13, lines 47-52, col. 8, lines 7-8, etc.)*. Chilimbi teaches in col. 8, lines 7-8 that although determining the cache block boundaries are usually done at run-time, it still can be done post-execution.

11. As to claim 4, Chilimbi teaches wherein said number of live frames is determined by a run-time analysis of cache access patterns of a simulation of said application *(col. 13, lines 47-52, col. 8, lines 7-8, etc.)*.

12. As to claim 5, Chilimbi teaches wherein said step of establishing said bound further comprises the step of comparing the sets that contain live frames of said application with sets accessed by an interrupting task to determine a maximum number of live-frames that may be affected by an interrupting task *(col. 9, lines 1-21, col. 8, lines 7-8, Abstract, etc.)*.

13. As to claim 6, Chilimbi teaches wherein said step of establishing said bound further comprises the steps of determining an effect of an interrupt at each possible interrupt point and establishing said bound based on a maximum of said effect of an interrupt at each possible interrupt point *(col. 9, lines 1-21, col. 8, lines 7-8, Abstract, col. 4, lines 1-5, etc.)*. It is inherent that there are interrupts occurring in the processing system and that the interrupt points are evident at the various points where the system is being processed dynamically.

14. As to claim 7, it is rejected for the same reasons as stated in the rejection of claim 1. In addition, Kikuchi teaches a memory *(Fig. 1, item 22)* that stores computer-readable code and a processor *(Fig. 1, item 21)*.

15. As to claims 8-10, they are rejected for the same reasons as stated in the rejections of claims 2-4.

16. As to claims 12-13, they are rejected for the same reasons as stated in the rejection of claims 6-7.

17. As to claims 14-15, they are rejected for the same reasons as stated in the rejections of claims 5-6.

18. As to claim 16, it is rejected for the same reasons as stated in the rejection of claim 1.

19. As to claims 17-18, they are rejected for the same reasons as stated in the rejections of claims 3-4.

20. As to claims 19-20, they are rejected for the same reasons as stated in the rejections of claims 5-6.

Response to Arguments

21. Applicant's arguments have been fully considered but are moot in view of the new grounds of rejections.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kenneth Tang whose telephone number is (571) 272-3772. The examiner can normally be reached on 8:30AM - 6:00PM, Every other Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai An can be reached on (571) 272-3756. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Kt
7/5/06

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